

Mario Marchi, collected butterflies for me on the Monte Giovi above Fiesole. There he found abundantly *A. coridon*, race *apennina*, Z., and in the first days of August also some individuals of the like species *A. arragonensis* (Gerh.), Vrtý., race *florentina*, Vrtý., II gen. *altera*, Vrtý. Of other species he only saw *S. fagi*, Scop. (= *hermione*, auct.), *C. croceus* (*edusa*) and *L. rivularis* (*camilla*).

From July 24th till the end of October, my friend, Lelio Misirocchi, who was spending his holidays in the island of Elba, made some entomological researches. At first he found many spoilt individuals of *S. statilius*, *H. neomiris*, *H. semele*, race *aristaeus*, *D. pandora*; afterwards, at the beginning of August, when the second brood ought to emerge of *C. corinna*, race *elbana*, *P. manni* and *Charaxes jasius*, every insect disappeared entirely.

(To be concluded.)

Butterflies of Gilan, N.W. Persia.

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The southern end of the Caspian Sea is fringed by forest, which stretches without any break from near Lenkoran, in the Transcaucasian republic of Azerbaijan, to Asterabad, in N.E. Persia. The greater part of the forest lies in Persia, in the provinces of Gilan and Mazandaran. The forest grows between the Caspian Sea and the Elburz mountains, and stretches from sea level (that is to say, from some 80 feet below mean sea level) to about 5,000-6,000 feet on the northern slopes of the Elburz; the width of the forest, from the sea shore to tree-line, is between thirty and sixty miles; it is provided with a heavy rainfall distributed through every month of the year.

Apart from this forest, Persia consists of a high, semi-desert tableland crossed by many ranges of rocky mountains, and the contrast between the fauna and flora of forest and plateau is extremely clearly marked.

I do not feel competent to deal with the fauna of the plateau, and will only say that it consists of genera and species well known, most of them, as characteristic of the great desert belt, which extends from Morocco, through Egypt and Syria, to Persia, Turkestan and the Gobi. My object in publishing this very incomplete list of the butterflies of the great forest is to show how entirely the fauna of this region differs from that of the stony plateau; even my few captures are of considerable interest, for much less is known of the fauna of Gilan than of that of most parts of Persia.

I was stationed in Resht and in Enzeli, both of them on the level of the Caspian Sea, from January to July, 1919.

During the winter we were free to move in any direction, but the advent of spring (and of insects) coincided with the outbreak of a minute, but troublesome war with some forest tribes, and from March onwards our movements were limited. At the end of June I went by sea to Astara, on the frontier between Persia and Azarbaijan, and returned, mostly by road, along the coast till I reached Enzeli.

Furtunately for me, Le Cerf (1913) has recently published a resumé of our present knowledge of the Persian butterflies. He has added considerably to the list, and under each species records its status in Persia, so far as it is known at present. His paper and bibliography are invaluable.

Specimens of several of the more interesting species have been deposited in the British Museum.

Pieris (Ganoris) brassicae, L.—February 25th, Resht; May 28th, June 6th, Enzeli; single specimens. I made a point of trying to catch every "white" I saw, and believe this species was uncommon. It is probably confined to the forest region, so far as Persia is concerned; all records to date suggest this.

Pieris napi, L.—One female, June 30th, Enzeli. This also appeared to be rare. The underside is entirely unveined, the dark tip of the forewing (upperside) is continued down the termen, and is united to the upper spot by black lines passing along two nervures; black scaling along the marginal termination of the nervures of the upperside, hindwing, is well marked.

Pieris rapae, L. var. *crucivora*, Btlr.—June 6th-30th. A long series of both sexes, Enzeli. This is by far my most interesting capture; the specimens cannot be distinguished from *crucivora* from China and Japan, a race which has been recorded from localities in Western China, but never, I think, further west than that. "*P. rapae*" was recorded by Ménétriers (1832) from Lenkoran, which is close to, but not in, the great forest, but I think the species has not yet been recorded in any form from the afforested provinces Gilan and Mazandaran. The specimens vary considerably, but the dusky scaling along the basal half of the costa is always considerable in both sexes; in the females it may be so extended as to involve the whole basal third, or half, of the wing, and to appear as a faint cloud uniting the apical mark to the two post-discal spots. In females the dark tip is often so suffused with white scales as to be broadly grey all along its costal side.

The males vary in expanse, 52mm.-62mm.; the females, 60mm.-64mm. It is remarkable that this species was never taken till June 6th; I do not think an earlier brood can have been overlooked. The insects were commoner in the woods than in gardens, and flew low over the ground in open places where flowers grow. They were more easy to catch than the ordinary form of *rapae* generally is. Dr. F. A. Dixey has been good enough to examine my specimens: he agrees that they cannot be separated from *crucivora* from the Far East.

Anthocharis gruneri, H. var. *armeniaca*, Christ.—March 27th, Menjil, 3,000ft. Males were common in a gorge above Menjil, among thick bushes and spring flowers. The country round Menjil is stony desert, and for that reason I have not included my captures in this paper. On this particular day I walked far enough to cross the extremely sharp line which separates desert and woodland, and in the woodland I obtained this species.

Le Cerf records "*Anthocharis cardamines*, L. var. *phoenissa*, Kalchb. f. *umbrosa*, Culot," from Teng-rir (I am unable to locate this place), and remarks that its racial characters give it somewhat the appearance of some forms of *A. gruneri*, H.-S. My specimen, however, is, without doubt, *A. gruneri* var. *armeniaca*.

Gonepteryx rhamni, L.—February 18th-March 20th, Resht. Both sexes in worn condition. All records given by Le Cerf suggest that this is a species confined in Persia to the extreme north, except for an old record of Kollar from "S. Persia." This is possibly due to some error.

Colias croceus, Fourcr. (*edusa*, Fab.).—May-June, Enzeli. Common in open spaces, and on the sandhills which fringe the sea. Var. *helice* was not at all uncommon in June.

Epinephele jurtina, L. (*janira*, L.) var. *ghilanica*, Le Cerf.—June 6th-30th (males), June 21st-July 4th (females), Enzeli. This beautiful race was abundant at Enzeli, flying in the depth of the forest more often than in open glades. The males visited bramble blossom. Le Cerf's type came from "Sia-Khâni" (alt. 6,000ft.), and he received specimens from various places, all on the northern slopes of the Elburz, between June and July. 28th. My specimens, which have been compared with the original series by Le Cerf himself, show that specimens from below mean sea level differ not at all from those from 6,000ft. The race, in fact, is characteristic of the forest, at whatever altitude, and differs in numerous characters, including genitalia from the races of the stony plateau.

Vanessa io, L.—February 19th-to March 20th, Resht.

Pyrameis atalanta, L.—February 19th-March 20th, Resht.

These two species are confined in Persia, so far as we know, to the province of Gilan (and Mazandaran probably). *P. atalanta*, however, occurs in Baghdad.

Pyrameis cardui, L.—This species was abundant at Enzeli throughout the spring and early summer. I have already (1920) recorded that in the spring larvæ were being used by sparrows to feed their young. The larvæ fed on many low plants, principally *Gnaphalium* sp.

Argynnis paphia, L.—Early July, Enzeli, and Tula Rud, N.W. of Enzeli, in the Persian Talish. The specimens are large (♂ 78mm., ♀ 80mm.), and in the British Museum are two from Lenkoran (Christoph coll.), ♂ 77mm., ♀ 80mm. This species also appears to be confined in Persia to the Caspian littoral. It was common and freshly emerged in the Talish at sea level, both sexes visiting bramble blossom.

Everes argiades, Pall.—June 3rd 1 ♂, 3 ♀, Enzeli. It seems useless to attempt to refer these few specimens to any of the races which have been described; it is a pity that more were not obtained. The male measures 27mm., the females 30mm., 30.5mm., 31mm. There are no Persian records, so far as I know, except from the Caspian provinces.

Celastrina argiolus, L.—March 30th, 1 ♂, Menjil (in a thickly-wooded gorge). June 30th-early July, ♂ ♂, Enzeli and Tula Rud, Talish. July 9th, ♀ ♀, Tula Rud, Talish.

This series differs from any local race in the British Museum; the essential characters are that in both sexes on the underside the discal spots are not abnormally conspicuous; the post-discal spots of forewing and hindwing are large and very dark, and the sub-terminal V-shaped marks, which are often hardly visible in European specimens, are very large, and tend to coalesce to form an irregular subterminal band on the forewing, and to a less extent on the hindwing. The underside is similar in colour to that of British specimens, except for the lack of blue scaling at the base of the wing. The colour of the upperside (male) tends rather to violet than to blue; in the females the black tips are enlarged so as to include the whole costa from the base and the whole terminal third of the forewing; the black

scaling of the hindwings covers everything except the disc. The fringes (♂ and ♀) are very indistinctly chequered. The var. *hypoleuca*, Kollar, described from S.W. Persia is, as one would expect, entirely different; this race appears to be widely distributed in the Middle East; the underside is marked by the smallness or obsolescence of all the spots. I always found *C. argiolus* among thick trees or thick bushes. It was generally found in very shady places, so dense with trees that one could barely move, flying low and visiting the flowers of *Stachys*. I never saw it flying high as it does in England, or visiting holly bushes, which were common.

Polyommatus icarus, Rott.—April 20th-24th, June 8th-30th, Enzeli. These specimens resemble *P. icarus*, from Britain, except in the ground colour of the underside of the males, which is very nearly white in most specimens, and in the post-discal spots of both wings, which are very large in both sexes. The upperside of the females is on the average very blue. The race generally known as "*persica*, Bienert," is that of the Persian plateau; Tutt has shown that Bienert's name *persica* can only apply to a rare aberration, which is of no geographical significance, and it appears that the plateau race referred to as *persica*, Bien., by many authors from Butler to Le Cerf should be called *fugitiva*, Butler; a number of races have been described from Chitral, Yarkand, etc., and the synonymy will be uncertain till much more material is forthcoming from Middle Asia. For our purpose it suffices that the race from the Caspian forests is very close to the typical *icarus*, while that from the bare plateau is, at any rate, fairly similar to the races of other high-lying, barren parts of Western and Central Asia.

Angiades sylvanus, Esp., var. *hyrcanus*, Christoph.—June 20th-30th, ♂ ♀, Enzeli. In these two specimens the extent of the dark hind-margins of the wings is slightly less than in Christoph's types (Elwes coll.) in the British Museum, but they are much closer to those specimens than to any others. The ♂ type is labelled "7.8.73, Asterabad," the ♀ "Asterabad." Christoph gives "Lenkoran, Astrabad," as the typical localities. Le Cerf erroneously says "Demavend, *loc. orig.*" So far as we know then, this well-marked race is peculiar to the great forest, and is found from end to end of it.

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SCIENTIFIC NOTES AND OBSERVATIONS.

OVUM AND FIRST CASE OF *COLKOPHORA IBIPENNELLA*, Str.—The species here in question is certainly Stainton's *ibipennella*, a birch feeder, but I do not believe that it is the *ibipennella* of Zeller, which is